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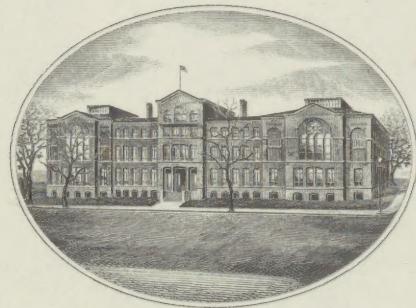
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U.S. OFFICE OF STRATEGIC SERVICES

Research and Analysis Branch

R & A No. 1423

THE REGIONAL INCIDENCE OF DISEASE IN GERMANY

A comparison of the incidence rates of diphtheria, scarlet fever, dysentery, typhoid and paratyphoid fever for various regions of Germany.

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Summary

There is no consistent pattern of uniform regional variations. Certain regions are more affected by specific diseases in a given year than others. In another year, there may be substantial changes.

While the war years have produced such changes, it has not been possible to establish any pattern of regional variation or wartime change.

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THE REGIONAL INCIDENCE OF DISEASE IN GERMANY

I. INTRODUCTION

The diseases selected include diphtheria, scarlet fever, dysentery, typhoid, and paratyphoid, incidence rates of which are calculated per 10,000 inhabitants. Comparisons are presented for two pre-war years, 1938 and 1939, and two war years, 1941 and 1942.

More complete information pertaining to these diseases will be found in the relevant parts of Health in Axis Europe, R & A No. 1070, 6 October 1943. The present study concerns one aspect not treated there, the question of whether there is a consistent pattern of uniform regional variations in disease throughout the years. The war has changed the previous regional distribution of disease incidence but the changes have been of an erratic nature, precluding the formulation of general statements as to the evolution of a new pattern; nor has it been possible to ascertain the extent to which the findings presented in the following pages should be modified in the light of such factors as deficient reporting of diseases, recent population movements, or the effects of air raids. The scale on which population movements

occurred in 1942 is uncertain. It is also uncertain to what extent such movements are reflected in the population base of the rates and whether or not members of the armed forces are included.

The statistical data with respect to the incidence of the five diseases under study are presented in the tables on the following pages. The figures, which have been taken in their entirety from the Reichsgesundheitsblatt, the official publication of the Reich Health Office, are presented in two forms to illustrate different aspects of the problem.

There is first presented a series of 5 tables indicating the incidence of the respective diseases per 10,000 inhabitants in the various regions, in order to give a quantitative picture of the prevalence of disease.

Table 6, on the other hand, indicates the rank of the several regions of Germany according to the incidence of the diseases. The figures given are not of cases of disease, but show the rank of the given region among those of all Germany. Thus, Anhalt, which had the highest incidence of diphtheria in 1938, is assigned the numeral "1" under that year; by 1939 it had fallen to ninth place, and is assigned the numeral "9". This table would reveal, should they exist, any fixed patterns in the regional incidence of the diseases under study.

II. INCIDENCE RATES OF SPECIFIC DISEASES

A. Diphtheria

The data do not reveal a consistent regional pattern. During the war years, Baden, Sachsen, the Sudeten territory, Bayern, and certain parts of Prussia show a rather high incidence. Of the regions, before the war, Bayern, Sachsen and Baden had a lower-than-average incidence. There is thus a possibility that the more recent outbreaks have been heavier in those regions which in former years were less exposed to this disease and thus had acquired a lesser degree of immunization. Table 1 on the following page indicates the number of cases of diphtheria per 10,000 inhabitants.

Table 1. CASES OF DIPHTHERIA PER 10,000 INHABITANTS

	1938		1939		1941		1942
Anhalt	49.0	Sudetenland	40.1	Hessen	34.8	Thüringen	49.0
Bremen	38.6	Bremen	32.2	Baden	32.5	Baden	45.1
Preussen	26.2	Ostmark	27.8	Lippe	31.7	Sudetenland	44.4
Oesterreich	25.0	Hamburg	26.2	Sudetenl.	29.9	Anhalt	43.6
Germany a	22.0	Lippe	25.6	Sachsen	26.4	Sachsen	38.6
Lippe	21.5	Preussen	24.0	Bayern	26.1	Württemberg	38.0
Hamburg	19.8	Germany	22.0	Sch.-Lippe	23.9	Bayern	35.9
Thüringen	19.2	Bayern	18.0	Preussen	23.7	Braunsch-	
Braunschweig	18.5	Hessen	16.7	Germany	22.8	weig	35.2
Bayern	17.5	Thüringen	16.3	Meckleng.	22.5	Westmark	34.0
Hessen	17.0	Anhalt	16.2	Braunsch.	21.6	Mecklenburg	32.6
Mecklenburg	14.8	Mecklenburg	15.2	Hamburg	21.4	Hessen	31.8
Sachsen	12.8	Sachsen	14.7	Ostmark	20.1	Preussen	31.4
Baden	12.3	Braunschweig	14.1	Oldenburg	18.6	Oldenburg	31.2
Saarland	12.1	Baden	13.8	Anhalt	18.1	Germany	31.2
Oldenburg	12.0	Schaumb-Lippe	8.5	Thüringen	17.1	Lippe	27.2
Württemberg	7.5	Oldenburg	8.2	Saarland	14.9	Hamburg	24.0
Schaumb-Lippe	2.2	Saarland	6.5	Württemb.	14.1	Alpen-and	
		Württemberg	6.2	Danzig-		Donau-	
				Westpr.	13.7	Reichsgaue	22.5
				Warthel.	9.9	Bremen	21.5
				Bremen	9.4	Danzig-West-	
						preussen	13.4
						Wartheland	9.4
						Schaumburg-	
						Lippe	9.4

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B. Scarlet Fever

Lippe, Bremen, Mecklenburg, Hamburg, Thüringen, Anhalt, the Sudeten territories, and some parts of Prussia show a high incidence of this disease throughout the years. The incidence is lower for the southern parts of Germany. Rates for Württemburg, Baden and Bavaria are consistently below the average. Table 2 on the following page indicates cases of scarlet fever per 10,000 inhabitants.

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Table 7. Summary of results from the 2003-04 IMAF-ASFA

	1938	1939	1942	1943
Prussia	51.2	50.0	49.3	49.1
Upper	26.1	26.2	25.2	24.9
Prussia	24.1	24.0	23.3	23.0
Lower	24.0	24.0	23.3	23.0
Prussia	19.2	19.2	18.5	18.5
Prussia	18.1	18.0	18.0	18.0
Austria	16.6	16.7	16.3	16.1
Bohemia	16.5	16.5	16.4	16.4
Schlesien	17.0	16.8	16.7	16.7
Germany a	11.2	10.7	10.1	9.9
Baden	10.2	9.8	9.4	9.1
Württemberg	10.1	9.8	9.4	9.1
Hessen	10.0	9.8	9.4	9.1
Württemberg	9.9	9.8	9.4	9.1
Prussia	9.8	9.8	9.4	9.1
Prussia	9.7	9.7	9.4	9.1
Prussia	9.6	9.6	9.4	9.1
Prussia	9.5	9.5	9.4	9.1
Prussia	9.4	9.4	9.4	9.1
Prussia	9.3	9.3	9.4	9.1
Prussia	9.2	9.2	9.4	9.1
Prussia	9.1	9.1	9.4	9.1
Prussia	9.0	9.0	9.4	9.1
Prussia	8.9	8.9	9.4	9.1
Prussia	8.8	8.8	9.4	9.1
Prussia	8.7	8.7	9.4	9.1
Prussia	8.6	8.6	9.4	9.1
Prussia	8.5	8.5	9.4	9.1
Prussia	8.4	8.4	9.4	9.1
Prussia	8.3	8.3	9.4	9.1
Prussia	8.2	8.2	9.4	9.1
Prussia	8.1	8.1	9.4	9.1
Prussia	8.0	8.0	9.4	9.1
Prussia	7.9	7.9	9.4	9.1
Prussia	7.8	7.8	9.4	9.1
Prussia	7.7	7.7	9.4	9.1
Prussia	7.6	7.6	9.4	9.1
Prussia	7.5	7.5	9.4	9.1
Prussia	7.4	7.4	9.4	9.1
Prussia	7.3	7.3	9.4	9.1
Prussia	7.2	7.2	9.4	9.1
Prussia	7.1	7.1	9.4	9.1
Prussia	7.0	7.0	9.4	9.1
Prussia	6.9	6.9	9.4	9.1
Prussia	6.8	6.8	9.4	9.1
Prussia	6.7	6.7	9.4	9.1
Prussia	6.6	6.6	9.4	9.1
Prussia	6.5	6.5	9.4	9.1
Prussia	6.4	6.4	9.4	9.1
Prussia	6.3	6.3	9.4	9.1
Prussia	6.2	6.2	9.4	9.1
Prussia	6.1	6.1	9.4	9.1
Prussia	6.0	6.0	9.4	9.1
Prussia	5.9	5.9	9.4	9.1
Prussia	5.8	5.8	9.4	9.1
Prussia	5.7	5.7	9.4	9.1
Prussia	5.6	5.6	9.4	9.1
Prussia	5.5	5.5	9.4	9.1
Prussia	5.4	5.4	9.4	9.1
Prussia	5.3	5.3	9.4	9.1
Prussia	5.2	5.2	9.4	9.1
Prussia	5.1	5.1	9.4	9.1
Prussia	5.0	5.0	9.4	9.1
Prussia	4.9	4.9	9.4	9.1
Prussia	4.8	4.8	9.4	9.1
Prussia	4.7	4.7	9.4	9.1
Prussia	4.6	4.6	9.4	9.1
Prussia	4.5	4.5	9.4	9.1
Prussia	4.4	4.4	9.4	9.1
Prussia	4.3	4.3	9.4	9.1
Prussia	4.2	4.2	9.4	9.1
Prussia	4.1	4.1	9.4	9.1
Prussia	4.0	4.0	9.4	9.1
Prussia	3.9	3.9	9.4	9.1
Prussia	3.8	3.8	9.4	9.1
Prussia	3.7	3.7	9.4	9.1
Prussia	3.6	3.6	9.4	9.1
Prussia	3.5	3.5	9.4	9.1
Prussia	3.4	3.4	9.4	9.1
Prussia	3.3	3.3	9.4	9.1
Prussia	3.2	3.2	9.4	9.1
Prussia	3.1	3.1	9.4	9.1
Prussia	3.0	3.0	9.4	9.1
Prussia	2.9	2.9	9.4	9.1
Prussia	2.8	2.8	9.4	9.1
Prussia	2.7	2.7	9.4	9.1
Prussia	2.6	2.6	9.4	9.1
Prussia	2.5	2.5	9.4	9.1
Prussia	2.4	2.4	9.4	9.1
Prussia	2.3	2.3	9.4	9.1
Prussia	2.2	2.2	9.4	9.1
Prussia	2.1	2.1	9.4	9.1
Prussia	2.0	2.0	9.4	9.1
Prussia	1.9	1.9	9.4	9.1
Prussia	1.8	1.8	9.4	9.1
Prussia	1.7	1.7	9.4	9.1
Prussia	1.6	1.6	9.4	9.1
Prussia	1.5	1.5	9.4	9.1
Prussia	1.4	1.4	9.4	9.1
Prussia	1.3	1.3	9.4	9.1
Prussia	1.2	1.2	9.4	9.1
Prussia	1.1	1.1	9.4	9.1
Prussia	1.0	1.0	9.4	9.1
Prussia	0.9	0.9	9.4	9.1
Prussia	0.8	0.8	9.4	9.1
Prussia	0.7	0.7	9.4	9.1
Prussia	0.6	0.6	9.4	9.1
Prussia	0.5	0.5	9.4	9.1
Prussia	0.4	0.4	9.4	9.1
Prussia	0.3	0.3	9.4	9.1
Prussia	0.2	0.2	9.4	9.1
Prussia	0.1	0.1	9.4	9.1
Prussia	0.0	0.0	9.4	9.1

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5. Dysentery

Hamburg, Bremenburg, the Warteland, and some parts of Prussia show a high incidence of this disease. The incidence is low in Wirsberg, the Odenwald territory, the Saarland and Rhenish. The range within which variations of this disease take place is wider than in the case of diphtheria and scarlet fever and extends from 0.1 per 10,000 to 4.7 per 10,000. Table 3 on the following page indicates the number of cases of dysentery per 10,000 inhabitants.

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Table 1. CASES OF DISEASE BY PER 10,000 INHABITANTS

	1938	1939	1941	1942
Westfalenburg	3.0	Hamburg	3.8	Hamburg
Denburg	2.1	Mecklenburg	1.5	Mecklenburg
Bayern	1.1	Bavaria	1.2	Warteland
Saarland	.83	Oldenburg	1.1	Baden
Preussen	.62	Preussen	.91	Oldenburg
Germany a	.78	Germany	.79	Bavaria
Oldenburg	.55	Tuiringen	.55	Germany
Thüringen	.41	Sachsen	.46	Oldenburg
Bremen	.34	Anhalt	.41	Preussen
Baden	.29	Baden	.32	Germany
Sachsen	.28	Württemberg	.20	Anhalt
Meissen	.21	Braunschweig	.20	Sachsen
Österreich	.12	Hessen	.18	Braunschweig- Sachsen
Württemberg	.168	Bremen	.15	Österreich
Preunschweig	.056	Ostmark	.13	Sachsen
Lippe	.055	Saarland	.10	Preussen
Anhalt	.0	Lippe	.033	Braunschweig
Sch.-Lippe	.0	Sudetenland	.003	Ostmark
		Sch.-Lippe	.0	Württemberg
				Sudetenland
				Lippe
				Sch.-Lippe
				Lippe
				Sudetenland

a - excluding Austria.

D. Typhoid Fever

This disease, which has increased greatly in recent years, occurs more widely in northern Germany than in the south. Regions showing a consistently high incidence include the Hamburg, Danzig and Western Prussia, Mecklenburg and certain other parts of Prussia. The incidence is low in Baden, Bayern, Thuringen and the Saarland. Table 4 on the following page indicates the number of cases of typhoid fever per 10,000 inhabitants.

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INTERNAL FERRY

Intertypalit traffic is also to start in northern Germany, France, Switzerland and Hamburg. It is leaving the Netherlands, Berlin and Western Prussia and Thuringen. Table 3 on the following page indicates the number of users of participating ferries on 15,000 kilometers.

Table 5. CASES OF HANTHROPOID FEVER IN 2,000 TROOPS

	1934	1939	1941	1942
Württemberg	1.2	Ostmark	1.1	Oldenburg
Österreich	1.3	Hessen	77	Sachsen
Deutschland	1.4	Bremen	78	Bremen
		Baden	81	Ostmark
	.62	Hamburg	.50	Braunschweig
	.52	Mecklenburg	.53	Germany
	.51	Württemberg	.52	Hamburg
	.50	Bayern	.47	Thüringen
	.47	Germany	.45	Preussen
	.43	Oldenburg	.43	Bayern
	.36	Preussen	.38	Sudetenland
	.33	Anhalt	.34	Saarland
	.15	Saarland	.32	Mecklenburg
	.15	Lippe	.27	Hessen
	.13	Braunschweig	.18	Anhalt
		Sch.-Lippe	.18	Württemberg
		Sudetenland	.17	Baden
		Sachsen		Brandenburg
		Thüringen	.13	preussen
				Warteland
				Lippe
				Sch.-Lippe
				068 Sch.-Lippe

THE RANK OF THE REGIONS OF GERMANY
ACCORDING TO THE INCIDENCE OF SPECIFIC DISEASES

From the data given in the preceding tables, it is possible to construct a table showing the pattern of the incidence of the five diseases in the various regions of the country. Table V on the following page presents this information. In the table a numerical classification rank among all the regions is assigned to each region for each of the four years, the region of highest incidence being indicated by "1", the next highest by "2", and so on. It is now possible to determine whether any part or parts of Germany have shown a uniformly high or low rank either with respect to one or more diseases or with respect to all diseases over time.

Study of the table fails to indicate any very consistent pattern of uniform regional variations.

Table 6. DEMOGRAPHIC CHANGES IN GERMANY AND IN THEREICH OF GERMANY, 1925, 1933, 1939, 1950

A. <u>Germany</u>	1925 1933 1939 1949				1925 1933 1939 1950				
	Adults	Dependents	Dependents	Adults	Adults	Dependents	Dependents	Adults	
Anhalt	1	9	13	3	Bremen	1	2	10	6
Bremen	2	1	17	16	Lippe	2	9	3	9
Franken	3	5	7	11	Anhalt	3	8	4	2
Mecklenburg a	4	2	11	15	Mecklenburg	4	3	1	3
Lower Saxony	5	4		13	Prussia	7	11	11	11
Hannover	6	3	10	14	Oesterreich a	6	7	17	15
Wolfsburg	7	8	14	1	Hamburg	7	1	6	2
Brandenburg	8	12	9	7	Thuringen	8	10	5	8
Berlin	9	6	5	6	Baden	9	11	9	10
Meissen	10	7	1	10	Braunschweig	10	4	11	9
Mecklenburg	11	10	8	9	Wurttemberg	11	12	12	18
Sachsen	12	11	4	4	Hessen	12	15	7	7
Meilen	13	13	2	2	Oldenburg	13	5	14	11
Westfalen a	14	16	15	8	Sachsen	14	13	2	6
Wittelsbach	15	25	12	12	Bayern	11			
Westphalia	16	17	16	5	Soh.-Lippe	16	14	16	17
Rh.-Lippe	17	14	6	17	Saarland b	17	17	13	14

** 1925: 1925-1933; 1933: 1933-1939
 b: Stadt Frankfurt

C. Dysentery

1938 1939 1941 1942

Mecklenburg	1	2	2	1
Hamburg	2	1	1	4
Bayern	3	3	5	7
Saarland b	4	15	11	15
Preussen	5	5	8	5
Oldenburg	6	4	4	6
Thüringen	7	6	6	8
Bremen	8	13	7	2
Baden	9	9	3	3
Sachsen	10	7	10	9
Hessen	11	12	12	13
Oesterreich a	12	14	14	12
Württemberg	13	10	15	14
Braunschweig	14	11	13	11
Lippe	15	16	16	17
Anhalt	16	8	9	10
Sch.-Lippe	17	17	17	16

D. Typhoid fever

1938 1939 1941 1942

Lippe	1	2	15	12
Mecklenburg	2	3	1	1
Oesterreich a	3	2	2	5
Bremen	4	4	6	8
Braunschweig	5	9	5	6
Anhalt	6	5	3	4
Preussen	7	7	4	2
Saarland b	8	16	7	14
Thüringen	9	6	10	15
Württemberg	10	12	13	10
Hamburg	11	13	11	17
Sachsen	12	15	8	16
Bayern	13	11	14	9
Baden	14	14	16	3
Hessen	15	8	9	13
Oldenburg	16	10	12	7
Schaumb.-Lippe	17	17	17	11

a - 1939, 1941: Ostmark; 1942: Alpen-and Donau-Reichsgaue

b - 1942: Westmark

E. Paratyphoid

	1938	1939	1941	1942
Württemberg	1	7	14	12
Oesterreich	2	1	4	1
Saarland	3	12	10	15
Bremen	4	3	3	4
Baden	5	4	15	11
Bayern	6	8	9	13
Mecklenburg	7	6	11	5
Hamburg	8	5	6	8
Preussen	9	10	8	3
Thüringen	10	17	7	17
Lippe	11	13	16	6
Sachsen	12	16	2	14
Braunschweig	13	14	5	9
Anhalt	14	11	13	7
Hessen	0	2	12	10
Oldenburg	0	9	1	2
Schaumburg-Lippe	0	15	17	16

c - Not reported

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